MECHANICAL SPECIFICATIONS AND NOTES

DUCTWORK

GENERAL:

COMPLY WITH NFPA 90A, "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING, VENTILATING SYSTEMS" AND 1997 UMC, EXCEPT AS INDICATED OTHERWISE.

PRODUCTS:

SHEET METAL MATERIALS, GENERAL: PROVIDE THE FOLLOWING MATERIALS WHERE INDICATED. PACKAGE AND MARK SHEET METAL MATERIALS AS SPECIFIED IN ASTM A 700.

GALVANIZED SHEET STEEL: LOCK-FORMING QUALITY, ASTM A 527, COATING DESIGNATION G 90, MILL PHOSPHATIZED FINISH FOR EXPOSED SURFACES OF DUCTS EXPOSED TO VIEW.

REINFORCEMENT SHAPES AND PLATES: UNLESS OTHERWISE INDICATED, PROVIDE GALVANIZED STEEL REINFORCING WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS.

HANGERS AND SUPPORTS: PROVIDE THE FOLLOWING HANGER AND SUPPORT COMPONENTS AS INDICATED:

BUILDING ATTACHMENTS: STRUCTURAL STEEL FASTENERS APPROPRIATE FOR BUILDING MATERIALS.

HANGERS: GALVANIZED SHEET STEEL, OR ROUND, UNCOATED STEEL, THREADED ROD.

STRAPS AND ROD SIZES: CONFORM WITH TABLE 4-1 IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1995 EDITION, FOR SHEET STEEL WIDTH AND GAGE AND STEEL ROD DIAMETERS.

DUCT ATTACHMENTS: SHEET METAL SCREWS, BLIND RIVETS, OR SELF-TAPPING METAL SCREWS, COMPATIBLE WITH DUCT MATERIALS.

RECTANGULAR DUCT FABRICATION: EXCEPT AS OTHERWISE INDICATED, FABRICATE RECTANGULAR DUCTS WITH GALVANIZED SHEET STEEL, IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", TABLES 1-3 THROUGH 1-25, INCLUDING THEIR ASSOCIATED DETAILS. CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.

EXECUTION:

LOCATE DUCTS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES; AVOID DIAGONAL RUNS. INSTALL DUCT SYSTEMS IN SHORTEST ROUTE THAT DOES NOT OBSTRUCT USEABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT.

EQUIPMENT CONNECTIONS: CONNECT EQUIPMENT WITH FLEXIBLE CONNECTORS.

GAS FIRED HEATERS:

THE HEATERS SHALL COMPLY TO AGA Z83.8 AND BEAR LABEL OF THE AMERICAN GAS ASSOCIATION. HEATERS SHALL BE FACTORY ASSEMBLED, PIPED, WIRED, AND TESTED FOR 120 VAC. THE HOUSING SHALL BE STEEL WITH INTEGRAL DRAFT HOOD AND INSERTS FOR SUSPENSION MOUNTING RODS. EXTERNAL CASINGS AND CABINETS SHALL HAVE A BAKED OVER CORROSION RESISTANT TREATED SURFACE. THE HEAT EXCHANGER SHALL BE ALUMINIZED STEEL WITH THE BURNERS BEING CONSTRUCTED OF CAST IRON WITH ALUMINIZED INSERTS. THE FAN SHALL BE CENTRIFUGAL, FACTORY BALANCED, RESILIENT MOUNTED, STEEL BELT DRIVEN WITH ADJUSTABLE PITCH MOTOR SHEAVE. PROVIDE THE UNIT WITH ELECTRONICALLY CONTROLLED SPARK WITH FLAME SENSOR, AUTOMATIC FAN THERMAL SWITCH, AND COMBUSTION AIR PRESSURE SWITCH.

ELECTRIC HEATERS:

THE UNIT HEATER SHALL HAVE A NICKEL-CHROMIUM HEATING WIRE ELEMENT; FREE FROM EXPANSION NOISE AND 60-HZ HUM; EMBEDDED IN MAGNESIUM OXIDE, INSULATING REFRACTORY; AND SEALED IN HIGH-MASS STEEL OR CORROSION RESISTANT METALLIC SHEATH WITH FINS NO CLOSER THAN .16 INCH (4MM). ELEMENT ENDS ARE ENCLOSED IN A TERMINAL BOX. FINS SURFACE TEMPERATURE DOES NOT EXCEED 550°F AT ANY POINT DURING NORMAL OPERATION. HEATER CIRCUIT PROTECTION SHALL HAVE ONE-TIME FUSES IN THE TERMINAL BOX FOR OVERCURRENT PROTECTION AND LIMIT CONTROLS FOR OVER-TEMPERATURE PROTECTION OF HEATERS. FAN AND MOTOR SHALL BE DIRECT DRIVE PROPELLER FAN AND MANUFACTURERS STANDARD MOTOR. MOTORS SIZED OVER 1HP AND LESS TO INLCUDE OVERLOAD PROTECTION. PROVIDE UNIT WITH HORIZONTAL DISCHARGE AND ADJUSTABLE LOUVERS; ALSO PROVIDED SHALL BE A WALL MOUNTED THERMOSTAT.

MANUAL VOLUME CONTROL DAMPERS

PROVIDE FACTORY-FABRICATED VOLUME CONTROL DAMPERS, COMPLETE WITH REQUIRED HARDWARE AND ACCESSORIES. LOCKING QUADRANT SHALL BE PROVIDED FOR ALL DAMPERS. STIFFEN DAMPER BLADES TO PROVIDE STABILITY UNDER OPERATING CONDITIONS. PROVIDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION. CLOSE DUCT PENETRATIONS FOR DAMPER COMPONENTS TO SEAL DUCT CONSISTENT WITH PRESSURE CLASS.

STANDARD VOLUME CONTROL DAMPERS: SINGLE-BLADE, OPPOSED-BLADE DESIGN AS INDICATED, LOW-LEAKAGE RATING, WITH LINKAGE OUTSIDE OF AIRSTREAM, AND SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS.

TESTING AND BALANCING

TESTING, ADJUSTING AND BALANCING SHALL BE ACCOMPLISHED BY AN INDEPENDENT FIRM CERTIFIED FOR TESTING AND BALANCING BY THE ASSOCIATED AIR BALANCE COUNCIL (AABC), OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). PRIOR TO TESTING AND BALANCING, THE CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED.

CLEAN FILTERS SHALL BE INSTALLED AT THE BEGINNING OF THE TESTING AND BALANCING EFFORT. EACH SYSTEM SHALL BE ADJUSTED UNTIL ALL FLOW QUANTITIES ARE WITHIN +10% AND -0%. DAMPERS SHALL BE CHECKED FOR TIGHT SHUTOFF. CONTRACTOR SHALL PERMANENTLY MARK AND IDENTIFY THE LOCATION OF ANY TEST PORTS AND ALL ADJUSTMENT DEVICES, INCLUDING SPLITTERS AND DAMPERS.

TESTING, ADJUSTING AND BALANCING SHALL BE COORDINATED WITH THE CONTROL SYSTEM INSTALLATION. ALL CONTROL COMPONENTS SHALL BE VERIFIED TO BE PROPERLY INSTALLED AND OPERATING. TESTING AND BALANCING FIRM SHALL SUBMIT FINAL REPORT TO ARCHITECT/ENGINEER FOR APPROVAL.

SCOPE OF WORK: TESTING AND BALANCING FIRM SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF THE AIR HANDLING UNIT AND THE VAV BOXES ASSOCIATED WITH THE NEW FLOOR PLAN ONLY.

SUBMITTALS

CONTRACTOR SHALL SUBMIT 5 COPIES OF THE SCHEDULED AND/OR SPECIFIED ITEMS TO THE ARCHITECT/ENGINEER FOR REVIEW.

GENERAL NOTES (APPLY TO ALL SHEETS):

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF HIMSELF, HIS EMPLOYEES AND OTHER PERSONS IN THE AREA, AS WELL AS FOR THE PROTECTION AND THE SAFETY OF THE IMPROVEMENTS BEING ERECTED AND THE PROPERTY OF HIMSELF AND OTHER PERSONS, AS A RESULT OF HIS OPERATIONS HEREUNDER.
2. THE CONTRACTOR SHALL BE FULLY AND COMPLETELY LIABLE AT HIS OWN EXPENSE FOR DESIGN, CONSTRUCTION, INSTALLATION AND USE OR NON-USE OF ALL ITEMS AND METHODS INNCIDENT TO PERFORMANCE OF THE CONTRACT, AND FOR ALL LOSS, DAMAGE OR INJURY INCIDENT THERETO EITHER PERSON OR PROPERTY, INCLUDING WITHOUT LIMITATION THE ADEQUACY OF ALL TEMPORARY SUPPORTS, SHORING, BRACING, SCAFFOLDING, MACHINERY OF EQUIPMENT, SAFETY PRECAUTIONS OF DEVICES, AND SIMILIAR ITEMS OF DEVICES USED BY THE CONTRACTOR DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE CONTRACTING OFFICER PRIOR TO BEGGINING ANY WORK. COMMENCEMENT OF WORK WILL BE CONSIDERED AS CONTRACTOR ACCEPTANCE OF CONDITIONS.
4. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PROPERLY COMPLETE THE WORK, INCLUDING ITEMS NOT SPECIFICALLY SET FORTH IN THE CONSTRUCTION DOCUMENTS WHICH ARE NECESSARY TO COMPRISE A FINISHED PRODUCT.
5. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE AREA WHERE THE WORK IS TO OCCUR. IT WILL BE UNDERSTOOD THAT THE CONTRACTOR WILL ACCEPT ALL CONDITIONS AS THEY NOW EXIST AT THE SITE.
6. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMENCEMENT OF CONSTRUCTION.
7. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH CONTRACTING OFFICER.
8. THE CONTRACTOR SHALL, AT ALL TIMES, ADHERE TO REQUIREMENTS OF ALL APPLICABLE NATIIONAL, STATE, AND LOCAL CODES AND RESTRICTIONS.
9. THE CONTRACTOR SHALL OBTAIN AND BE RESPONSIBLE FOR ALL FEES, PERMITS, AND INSPECTIONS REQUIRED AND ASSOCIATED WITH ALL PHASES OF WORK.
10. THE CONTRACTOR SHALL COORDINATE ALL COLORS WITH CONTRACTING OFFICER.
11. THE CONTRACTOR SHALL FOLLOW PUBLISHED MANUFACTURER'S GUIDELINES FOR THE INSTALLATION OF ALL MATERIALS AND EQUIP.
12. THERE SHALL BE A ONE (1) YEAR GUARANTEE ON ALL WORK.
13. THESE DRAWINGS ARE SCHEMATIC IN NATURE, AND DO NOT SHOW EXACT LOCATIONS, ETC. IT IS LEFT TO THE DESIGNER TO PROVIDE NECESSARY ITEMS IN AN APPROPRIATE MANNER TO RESULT IN A PROPERLY FUNCTIONING SYSTEM.

KEYED NOTES:

1. DOOR LOUVER. SEE ARCHITECTURAL SPECIFICATIONS.
2. CONNECT TO FLOOR HEAT BOILER.
3. RADIANT FLOOR HEATER (OPTIONAL).

EF-1 WALL MOUNTED PROPELLER EXHAUST FAN:

SIZE UNIT IN ORDER TO MAINTAIN THE INDICATED ROOM AIR CHANGES PER HOUR. PROVIDE WITH EXTERIOR LOUVER AND BIRDSCREEN MESH. UNIT SHALL RUN CONTINUOUSLY.

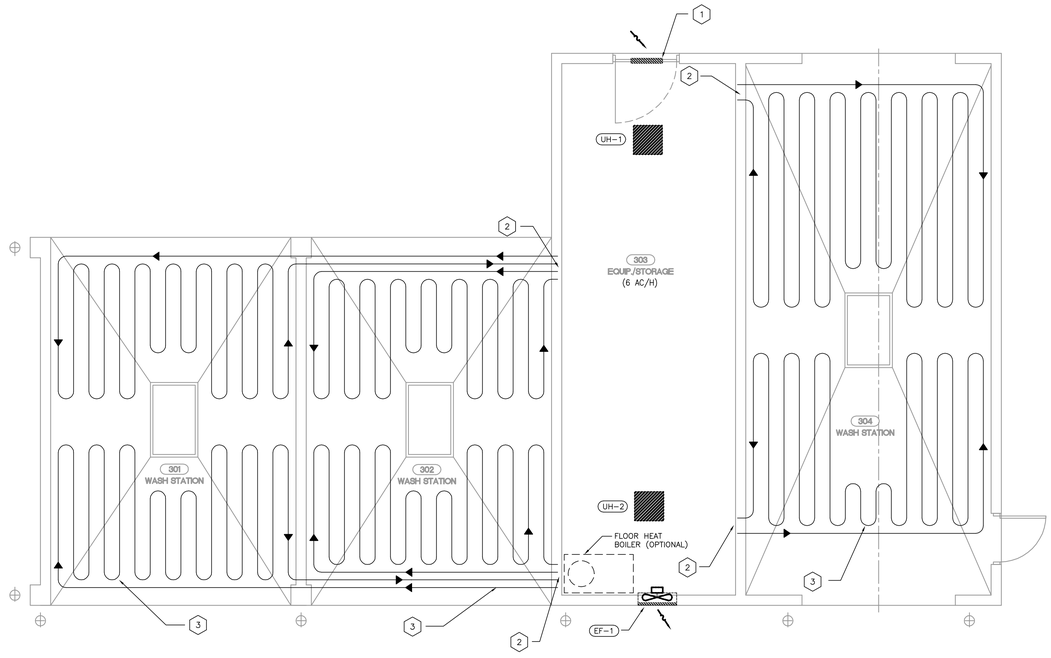
UH-1 UH-2 UNIT HEATERS (OPTIONAL):

SIZE UNITS IN ORDER TO MAINTAIN EQUIPMENT ROOM AT A MINIMUM OF 40° F. UNITS SHALL BE SUSPENDED FROM STRUCTURE. HEATING TYPE SHALL BE DETERMINED BY THE CONTACTING OFFICER. IF AMBIENT CONDITIONS MEET THE REQUIRED TEMPERATURE FOR THE EQUIPMENT STORAGE ROOM; THE UNIT HEATERS MAY BE ELIMINATED.

FLOOR HEAT BOILER/RADIANT FLOOR HEATER (OPTIONAL):

SIZE UNIT AS TO ACCOMODATE CLIMATE CONDITIONS OF THE LOCATION. IF AMBIENT CONDITIONS OF LOCATION ARE NOT SUSCEPTIBLE TO FREEZING TEMPERATURES, THE BOILER AND RADIANT FLOOR HEATER MAY BE ELIMINATED. BOILER TYPE SHALL BE DECIDED BY THE CONTRACTING OFFICER.

RM # — ROOM DESIGNATION
@ ACH — MINIMUM NUMBER OF AIR CHANGES PER HOUR.



1 / M301 | M301 CAR WASH - MECHANICAL
1/4"=1'-0"

PLAN NORTH

0 1' 2' 4' 8' 16'
SCALE: 1/4" = 1'-0"

SYMBOL		DESCRIPTION	DATE	APPROVAL

REVISIONS

Drawn by: J.F.

COORDINATION:

Engr:

Design and Construction:

APPROVAL:

Director of Facilities date

Director of Operations date

HEADQUARTERS AIR FORCE SERVICES AGENCY

Title:

UNITED STATES AIR FORCE
NON-APPROPRIATED FUNDS PROJECT
35% AFNAF PROTOTYPES DESIGN
CONTRACT NO. NAFBA195CD0012
POV CAR WASH
MECHANICAL FLOOR PLAN

SCALE: 1/4"=1'-0" DATE: APRIL 17, 2000

DRAWING NUMBER:

SHEET M3.01 OF